TSOC '16 Contest 2 #6 - Hinata and Volleyball Graph

Time limit: 1.0s **Memory limit:** 256M

For a recap of part one of the super-popular story, see this recap image.

HINATA AND VOLLEYBALL GRAPH: *PART TWO*

Consider the following method of decomposing a volleyball into a graph. Assume that a volleyball's surface contains six sections, or faces. Each section will have the same number of panels, or ridges. Denote the number of panels per section as k. Edgewise adjacent panels are considered as being connected by an edge. Two panels that have an edge connecting them do not have to be on the same section (face).

For the purposes of this problem: Imagine a volleyball as a cube. Imagine one face facing toward you. Each face is a section. The lines on a section separate it into *panels*. The panels are horizontal on the face/section closest to you and horizontal on the face/section farthest from you. All other faces/sections have vertical panels.

> *GUWAA?!* Hinata thought. *For a 2–graph, how many edges is that even? 1, 2, ... And what if I considered T such k–graphs? Maybe I should just get some piece of software to solve this for me.*

As an up-and-coming volleyball player, Hinata would like to know for T volleyballs, each with a given number of panels per section k, the number of total edges there are in the corresponding graph of the volleyball as defined above.

Constraints

Subtask 1 [10%]

$T = 1$, $k = 1$

Subtask 2 [10%]

$T = 1$, $k = 2$

Subtask 3 [80%]

$T \leq 10^5$, $1 \leq k \leq 10^9$

Input Specification

First line: T, the number of test cases.

Next T lines: An integer k.

Output Specification

T lines of output, each with a single integer: The number of edges in the specified k–graph, in the same order as the input.

Sample Input

```
1
2016420
```

Sample Output

```
36295554
```

Notes

- Use of `long long` or other data types that can store numbers greater than 10^9 is strongly recommended.
- The constraints are set the way they are for a reason! Feel free to sketch out the first two and find the answer by hand.
- For more on what a volleyball looks like, see the Wikipedia article.